

TECHNICAL SUPPORT DOCUMENT FOR CANCER POTENCY FACTORS

APPENDIX K

Additions and Corrections from the 1999 Document Version

Asbestos

p. 2: Inhalation slope factor $[2.2 \text{ E}+2 \text{ (mg/kg-day)}^{-1}]$ added to the unit risk/cancer potency lookup table.

p. 73: Inhalation slope factor $[2.2 \text{ E}+2 \text{ (mg/kg-day)}^{-1}]$ added to the chemical summary text.

p. 589: Inhalation slope factor $[2.2 \text{ E}+2 \text{ (mg/kg-day)}^{-1}]$ added to the Appendix H lookup table.

Bis(chloromethyl)ether

p. 2: Unit risk/cancer potency lookup table corrected; slope factor changed from $4.6 \text{ E}+2 \text{ (mg/kg-day)}^{-1}$ to $4.6 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$.

p. 134 (summary text), p.590 (Appendix H lookup table): slope factor corrected from $4.6 \text{ E}+2 \text{ (mg/kg-day)}^{-1}$ to $4.6 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$.

1,6-Dinitropyrene

p. 4: Unit risk/cancer potency lookup table corrected; CAS number changed from 4239-76-48 to 42397-64-8.

1,8-Dinitropyrene

p. 4: Unit risk/cancer potency lookup table corrected; CAS number changed from 4239-76-59 to 42397-65-9.

Ethylene dichloride

p. 4: Unit risk/cancer potency lookup table corrected; slope factor changed from $7.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.2 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$, unit risk changed from $2.2 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.1 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

p. 288, 291: Chemical summary text corrected; slope factor changed from $7.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.2 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$, unit risk changed from $2.2 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.1 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

p. 585: Appendix F lookup table corrected; unit risk changed from $2.2 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.1 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

p. 592: Appendix H lookup table corrected; slope factor changed from $7.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.2 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$, unit risk changed from $2.2 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.1 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

Methylene chloride

p. 5: (inhalation) removed from column 1 of unit risk/cancer potency lookup table.

p. 593: (inhalation) removed from column 1 of Appendix H lookup table; row containing oral slope factor removed (to reflect absence of oral slope factor in lookup table).

Methyl tert-butyl ether

p. 5: Added unit risk and slope factor to unit risk/cancer potency lookup table.

p. 346: Added chemical-specific information summary.

p. 592: Added exposure route, study type, unit risk and slope factor information to Appendix H lookup table.

N-Nitrosodi-n-butylamine

p.5: Unit risk/cancer potency lookup table corrected; name changed from N-Nitroso-n-dibutylamine.

p. 583: Appendix E lookup table; name changed from N-Nitroso-n-dibutylamine.

p. 585: Appendix F lookup table; name changed from N-Nitroso-n-dibutylamine.

p. 593: Appendix H lookup table; name changed from N-Nitroso-n-dibutylamine.

N-Nitroso-N-methylethylamine

p. 5: Unit risk/cancer potency lookup table corrected; slope factor changed from $3.7 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$ to $2.2 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$.

p. 390: slope factor changed from $3.7 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$ to $2.2 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$.

p. 593: Appendix H lookup table slope factor changed from $3.7 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$ to $2.2 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$.

Particulate Matter from Diesel-fueled Engines

Unit risk/cancer potency lookup table footnotes corrected: upper end of unit risk range changed from $1.5 \text{ E}-3 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.4 \text{ E}-3 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

p. 428: Unit risk range changed in Section II: Health Assessment Values of the chemical-specific information summary from $1.5 \text{ E}-3 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $2.4 \text{ E}-3 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

p. 578: Added a listing for “Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant. Part B. Health Risk Assessment for Diesel Exhaust” to Appendix B, Toxic Air Contaminant Documents.

p. 592: Added a row for “diesel exhaust” to Appendix H lookup table, including appropriate footnote additions.

Perchloroethylene

p. 479: unit risk factor in chemical-specific information summary text corrected from $5.6 \text{ E}-6 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $5.9 \text{ E}-6 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.

Polychlorinated biphenyls (PCBs)

p. 5: Unit risk and slope factor for “low risk” PCBs added (documentation was included in earlier version but values had been omitted).

p. 486: Unit risk for “low risk” PCBs added.

p. 490: An inhalation unit risk factor for “low risk” PCBs and a description of cases when use of the “low risk” inhalation unit risk factor would be appropriate based on the original U.S. EPA documentation was added to Section IV: Derivation of Cancer Potency (Methodology) of the chemical-specific information summary for PCBs.

p. 594: An inhalation unit risk factor for “low risk” PCBs was added to the Appendix H lookup table.

Thioacetamide

- p. 6: Unit risk/cancer potency lookup table corrected; slope factor changed from $6.1 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$ to $6.1 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$.
- p. 511: slope factor in summary text changed from $6.1 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$ to $6.1 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$.
- p. 594: Appendix H lookup table slope factor changed from $6.1 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$ to $6.1 \text{ E}+0 \text{ (mg/kg-day)}^{-1}$.

1,1,2-Trichloroethane

- p. 519: Cancer slope factor of $5.7 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ added to Section II: Health Assessment Values portion of chemical-specific information summary text; cancer unit risk factor corrected from $2.1 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$ to $1.6 \text{ E}-5 \text{ (}\mu\text{g/m}^3\text{)}^{-1}$.
- p. 521: slope factor in chemical-specific information summary text corrected from $1.7 \text{ E}+1 \text{ (mg/kg-day)}^{-1}$ to $5.7 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$.

Trichloroethylene

- p. 6: Unit risk/cancer potency lookup table corrected; slope factor changed from $1.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.0 \text{ E}-3 \text{ (mg/kg-day)}^{-1}$.
- p. 522: slope factor in chemical-specific information summary text changed from $1.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.0 \text{ E}-3 \text{ (mg/kg-day)}^{-1}$.
- p. 594: Appendix H lookup table slope factor changed from $1.0 \text{ E}-2 \text{ (mg/kg-day)}^{-1}$ to $7.0 \text{ E}-3 \text{ (mg/kg-day)}^{-1}$.

Additions and Corrections from the 2002 Document Version

Preface

- p. *i*: Updated listed carcinogen count from 121 to 122, described adoption of WHO₉₇ Toxicity Equivalence Factors (TEFs) for chlorinated dibenzo-*p*-dioxins, chlorinated dibenzofurans and PCB congeners.

Introduction

- p.1: Document reorganization described, including movement of Unit Risk and Cancer Potency Values table into Appendix A, Chemical-Specific Information Summaries into Appendix B, and renumbering of all other Appendices.

Chlorinated Dibenzo-*p*-dioxins

Chlorinated Dibenzofurans

- p. A-1, A-2: Unit risk/cancer potency lookup table changed to reflect adoption of WHO₉₇ Toxicity Equivalence Factors (TEFs) and change of IARC classification to Class 1.
- p. B-144: Chemical summary changed to reflect adoption of WHO₉₇ Toxicity Equivalence Factors (TEFs).
- p. C-1: Appendix C changed to reflect adoption of WHO₉₇ Toxicity Equivalence Factors (TEFs).

Naphthalene

- p. A-4: Entry for naphthalene added to unit risk/cancer potency lookup table.

- p. B-352: Chemical summary for naphthalene added.
- p. 651: Entry for naphthalene added to Appendix J.

Polychlorinated biphenyls

- p. A-5: PCB unit risk and slope factors based on TCDD/WHO-TEFs added for use where measurements or estimates are available for PCB congeners.
- p. B-484: Chemical summary changed to reflect adoption of WHO₉₇ Toxicity Equivalence Factors (TEFs) for PCB congeners.

Additions and Corrections from the 2005 Document Version

Title Page

Changed the document title to “Technical Support Document for Cancer Potency Factors” from “Technical Support Document for Describing Available Cancer Potency Factors”.

Executive Summary

- p. *i*: Added an executive summary section describing the purpose and contents of the TSD, with an emphasis on highlighting new additions.

Preface

- p. 3: Added a brief description of the use of age-specific weighting factors in calculating cancer risks from exposures of infants, children and adolescents, to reflect their anticipated special sensitivity to carcinogens.

Selection of Cancer Potency Values

- p. 8: The description of how cancer potency values were selected for the TSD was updated.

Cancer Risk Assessment Methodologies

- p. 9 : The description of OEHHA cancer risk assessment methodologies was updated to include 1) a Hazard Identification section; 2) a Dose Response Assessment section; 3) a description of the application of the benchmark dose approach to cancer risk assessment; 4) the use of early-lifestage cancer potency adjustments.

Benzene

- p. B-66: Additional benzene occupational exposure cancer epidemiology data added to DERIVATION OF CANCER POTENCY: Methodology section.

Ethylbenzene

- p. A-3: Entry for ethylbenzene added to unit risk/cancer potency lookup table.
- p. B-276: Chemical summary for ethylbenzene added.
- p. J-4: Entry for ethylbenzene added to Appendix J.

Appendices

Appendix G, H

Removed from the TSD; all following Appendices renumbered.

Appendix I

Added Appendix I: Barton HA, Cogliano VJ, Flowers L, Valcovic L, Setzer RW and Woodruff TJ. 2005. Assessing susceptibility from early-life exposure to carcinogens. Environ Health Perspect 113:1125-1133.

Appendix J

Added Appendix J: In Utero and Early Life Susceptibility to Carcinogens: The Derivation of Age-at-Exposure Sensitivity Measures. February 2007. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Reproductive and Cancer Hazard Assessment Branch.